FIG. 1

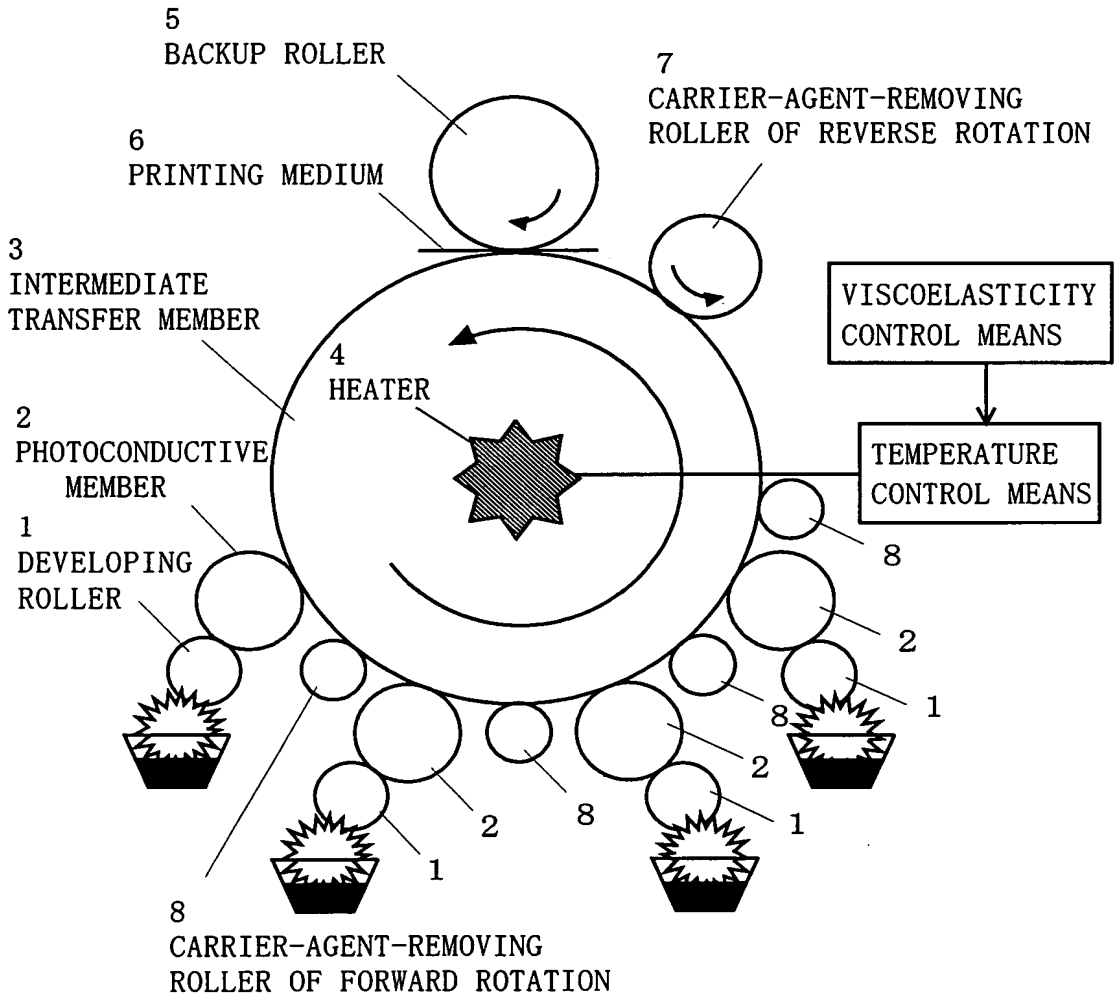

5
BACKUP ROLLER
7
CARRIER-AGENT-REMOVING
ROLLER OF REVERSE ROTATION
6
PRINTING MEDIUM
3
INTERMEDIATE
TRANSFER MEMBER
VISCOELASTICITY
CONTROL MEANS
4
HEATER
2
PHOTOCONDUCTIVE
MEMBER
TEMPERATURE
CONTROL MEANS
1
DEVELOPING
ROLLER
8
2
1
8
2
8
2
1
1
8
CARRIER-AGENT-REMOVING
ROLLER OF FORWARD ROTATION

FIG. 2

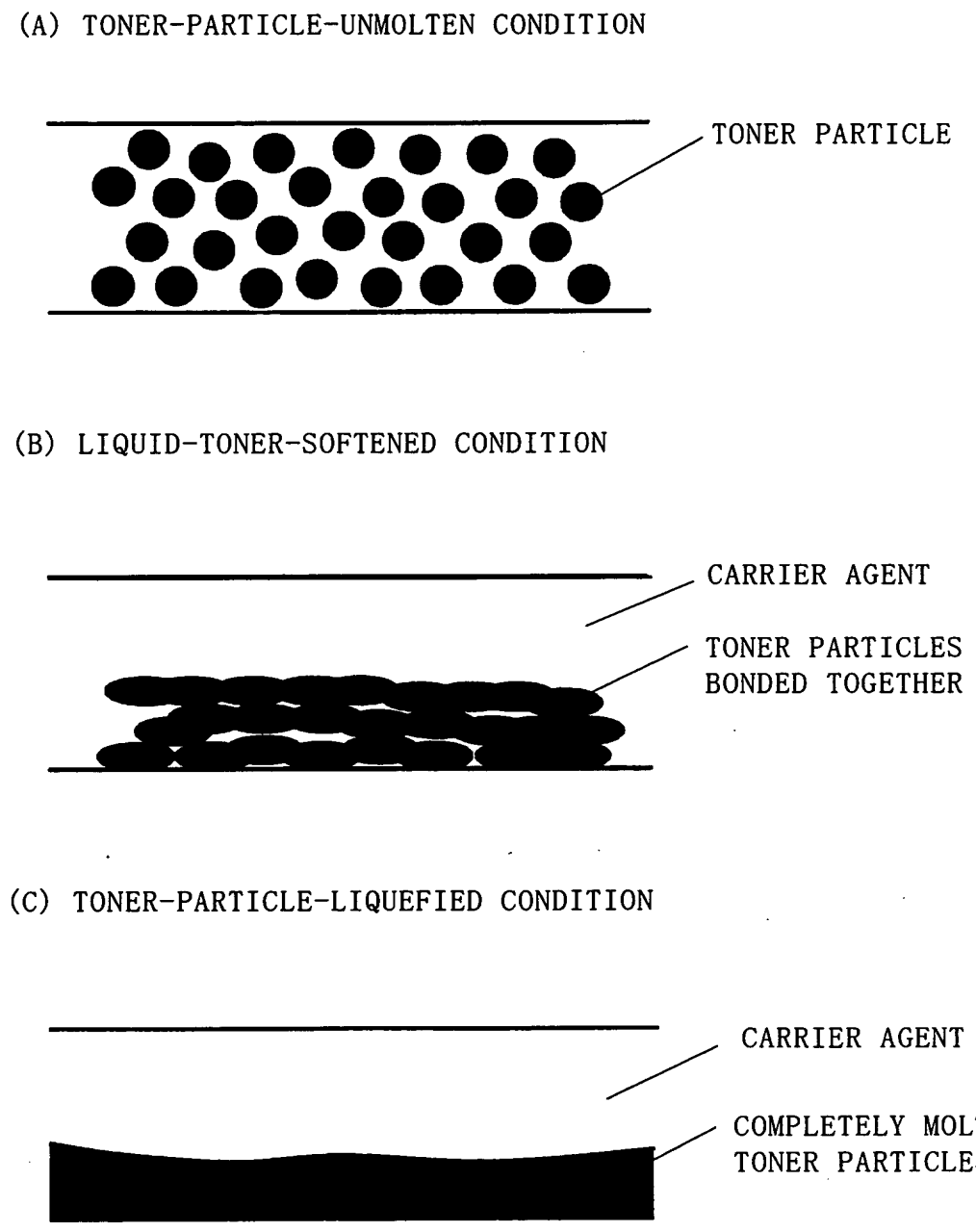
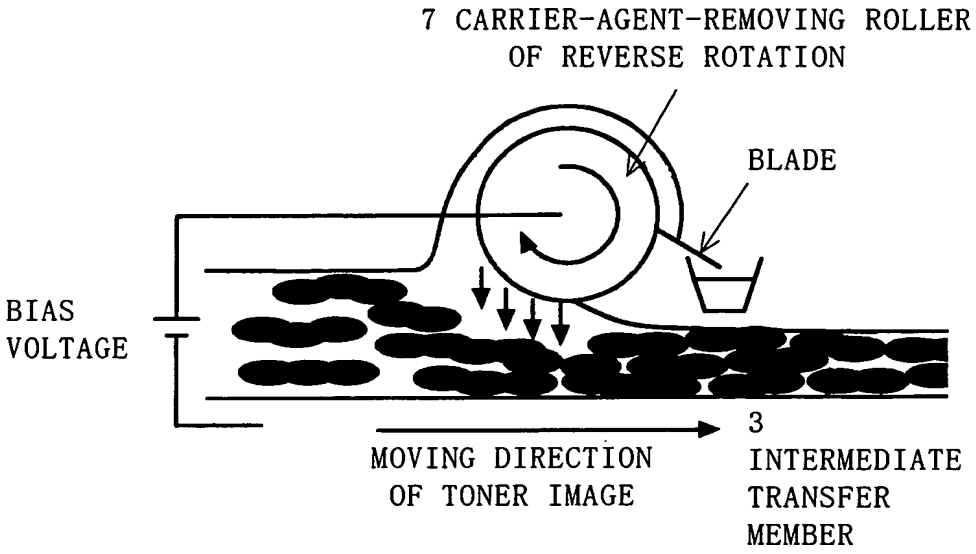

(A) TONER-PARTICLE-UNMOLTEN CONDITION
TONER PARTICLE
(B) LIQUID-TONER-SOFTENED CONDITION
CARRIER AGENT
TONER PARTICLES
BONDED TOGETHER
(C) TONER-PARTICLE-LIQUEFIED CONDITION
CARRIER AGENT
COMPLETELY MOLTEN
TONER PARTICLES

FIG. 3

(A) PROCESS FOR CAUSING CARRIER AGENT TO FLOAT UP



(B) PROCESS FOR REMOVING CARRIER AGENT

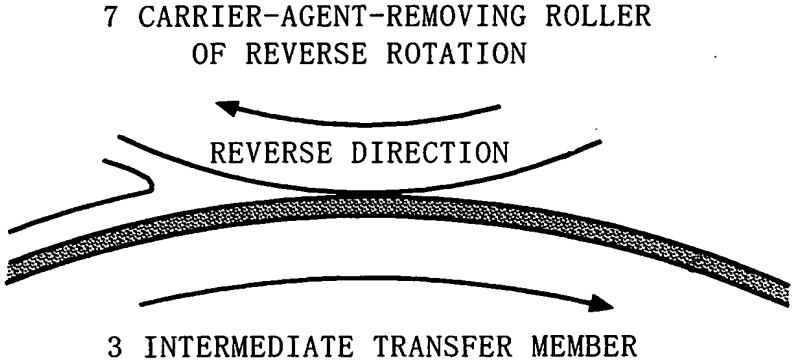


FIG. 4

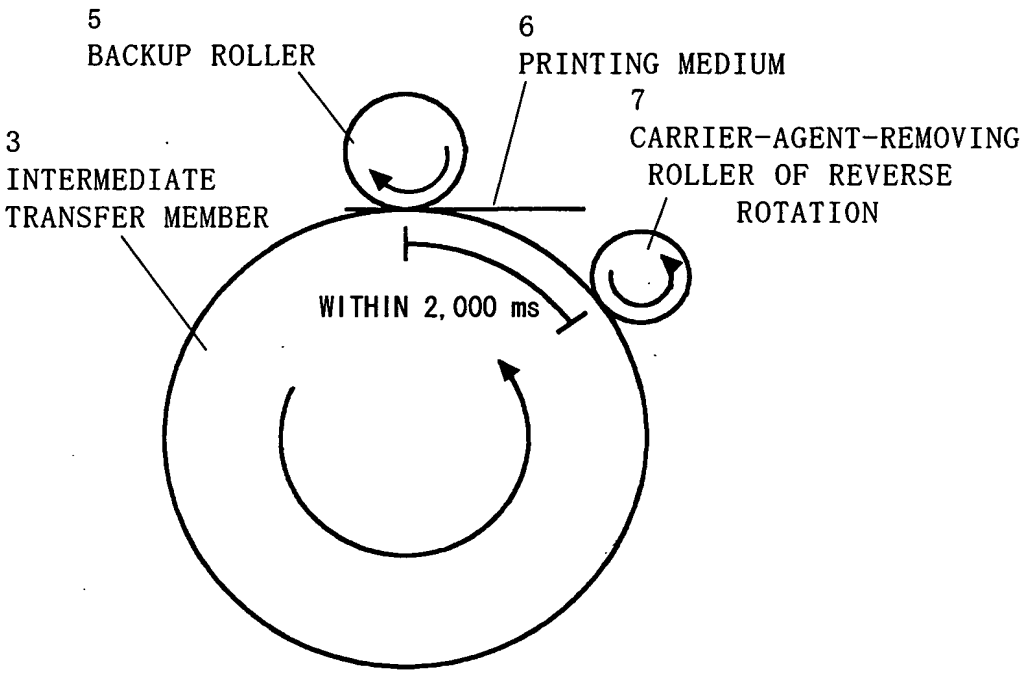

5
BACKUP ROLLER
6
PRINTING MEDIUM
7
CARRIER-AGENT-REMOVING
ROLLER OF REVERSE
ROTATION
3
INTERMEDIATE
TRANSFER MEMBER
WITHIN 2,000 ms

FIG. 5

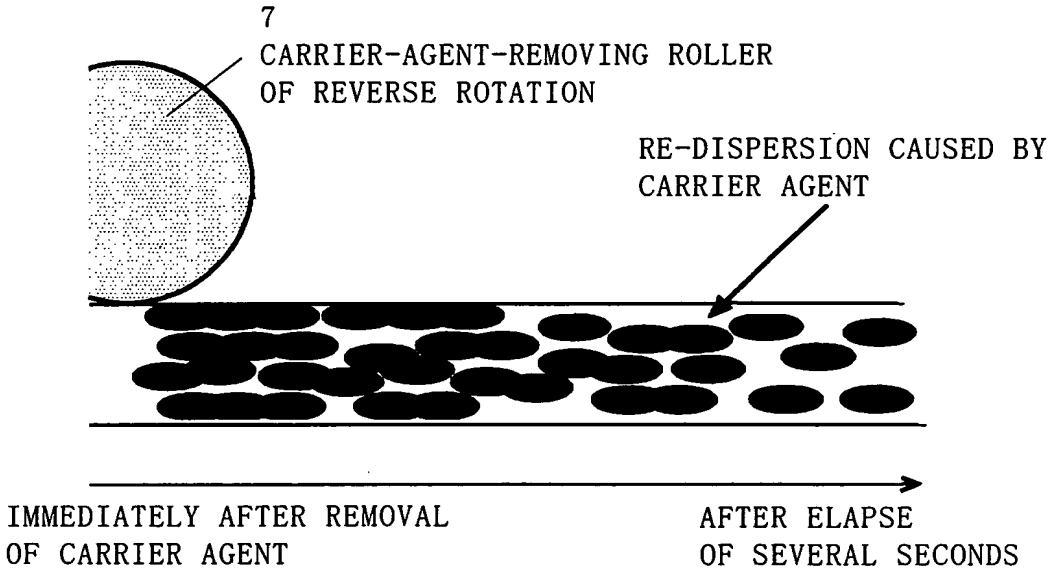
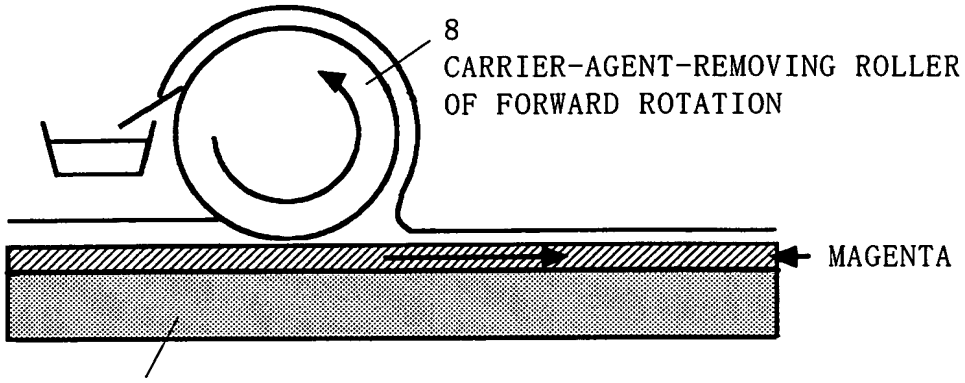

7
CARRIER-AGENT-REMOVING ROLLER
OF REVERSE ROTATION
RE-DISPERSION CAUSED BY
CARRIER AGENT
IMMEDIATELY AFTER REMOVAL
OF CARRIER AGENT
AFTER ELAPSE
OF SEVERAL SECONDS

FIG. 6

(A) AFTER TRANSFER OF MAGENTA, CARRIER AGENT IS REMOVED



(B) AFTER TRANSFER OF YELLOW, CARRIER AGENT IS REMOVED

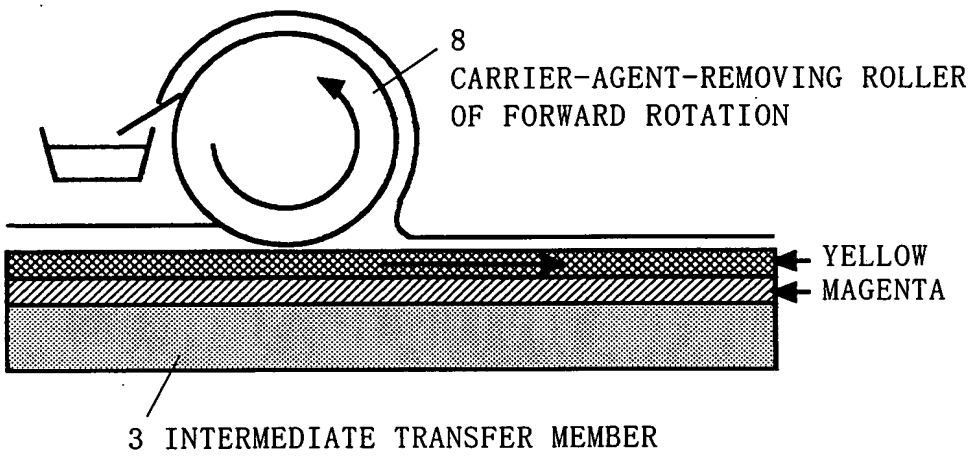
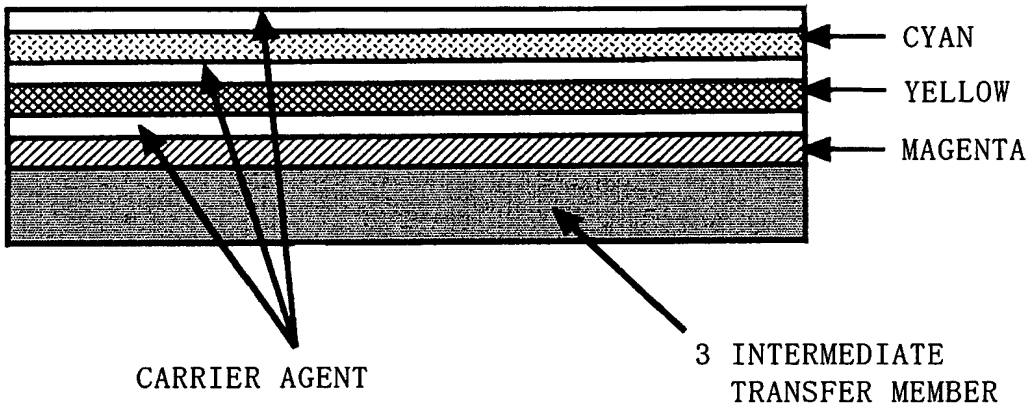


FIG. 7

(A) WHEN REMOVAL OF CARRIER AGENT IS NOT PERFORMED IN EACH TRANSFER OF TONER IMAGE IN EACH COLOR



(B) WHEN REMOVAL OF CARRIER AGENT IS PERFORMED IN EACH TRANSFER OF TONER IMAGE IN EACH COLOR

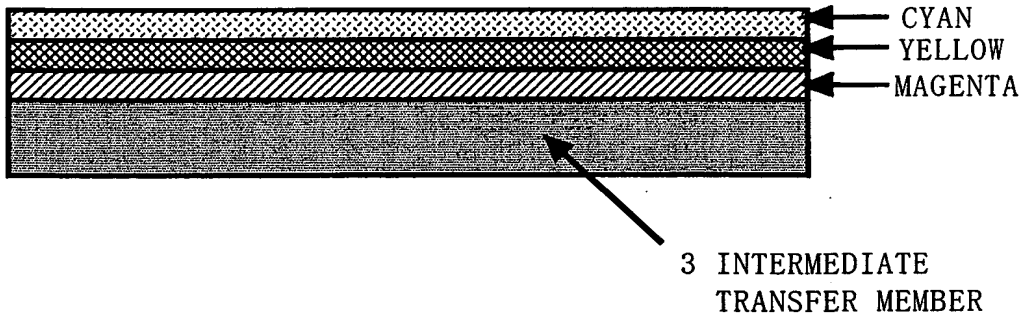


FIG. 8

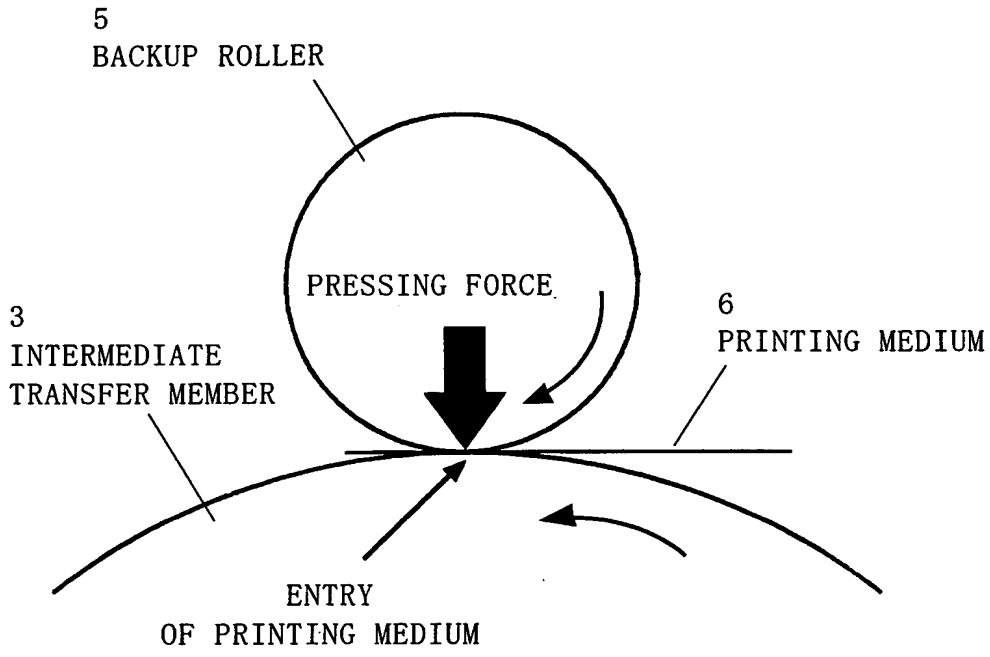

5
BACKUP ROLLER
PRESSING FORCE
3
INTERMEDIATE
TRANSFER MEMBER
6
PRINTING MEDIUM
ENTRY
OF PRINTING MEDIUM

FIG. 9

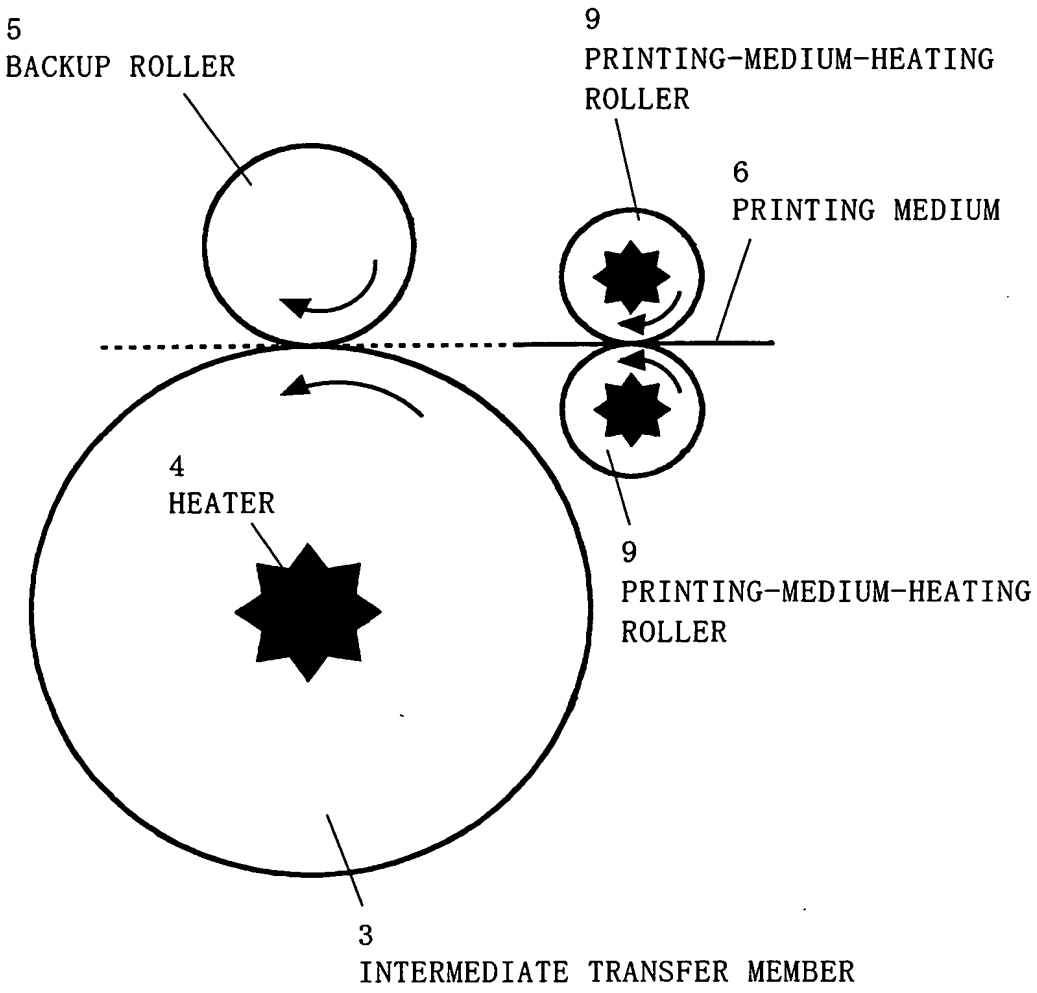

5
BACKUP ROLLER
9
PRINTING-MEDIUM-HEATING
ROLLER
6
PRINTING MEDIUM
4
HEATER
9
PRINTING-MEDIUM-HEATING
ROLLER
3
INTERMEDIATE TRANSFER MEMBER

FIG. 10

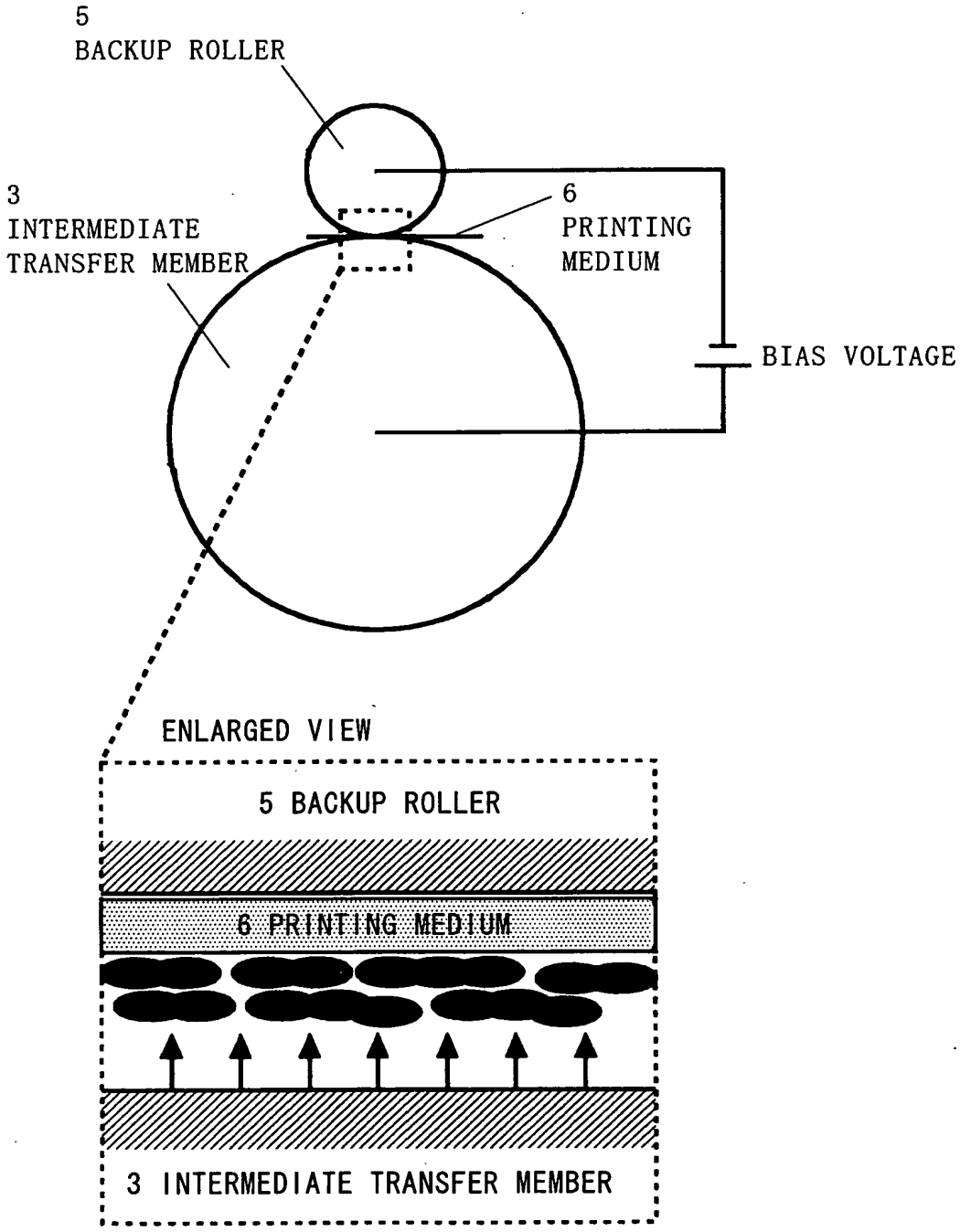
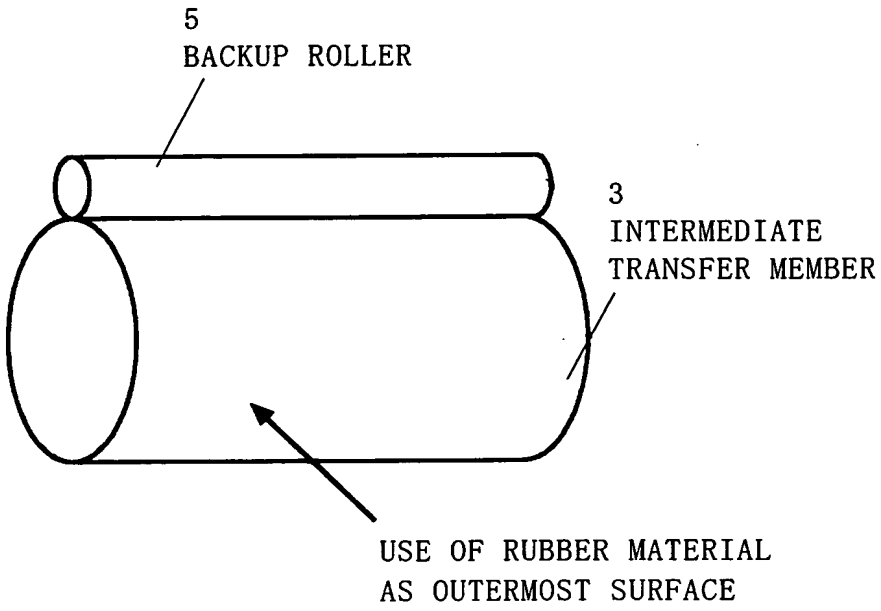

5
BACKUP ROLLER
3
INTERMEDIATE
TRANSFER MEMBER
6
PRINTING
MEDIUM
BIAS VOLTAGE
ENLARGED VIEW
5 BACKUP ROLLER
6 PRINTING MEDIUM
3 INTERMEDIATE TRANSFER MEMBER

FIG. 11

(A)


5
BACKUP ROLLER
3
INTERMEDIATE
TRANSFER MEMBER
USE OF RUBBER MATERIAL
AS OUTERMOST SURFACE

(B)

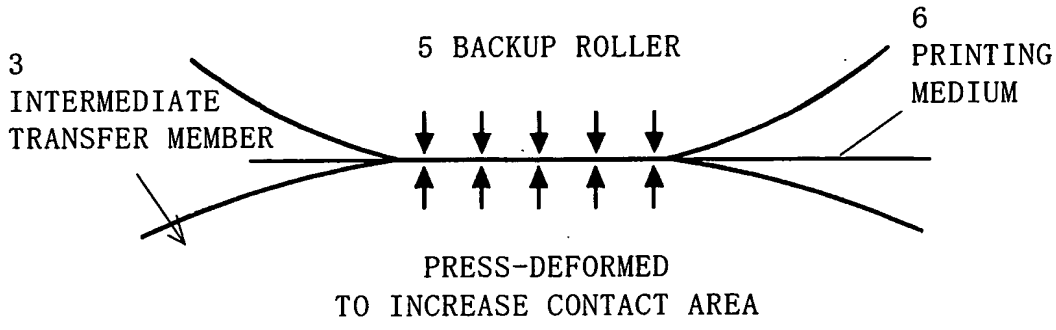

3
INTERMEDIATE
TRANSFER MEMBER
5 BACKUP ROLLER
6
PRINTING
MEDIUM
PRESS-DEFORMED
TO INCREASE CONTACT AREA

FIG. 12

PRIOR ART

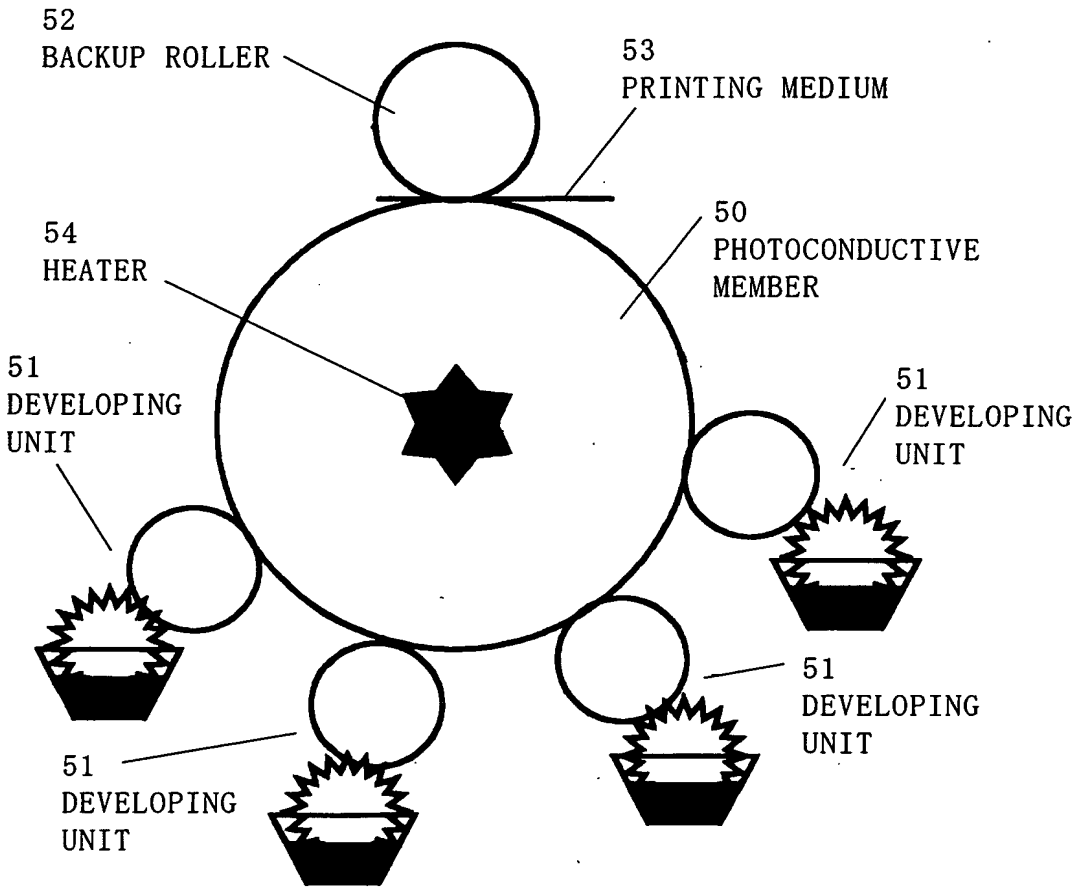
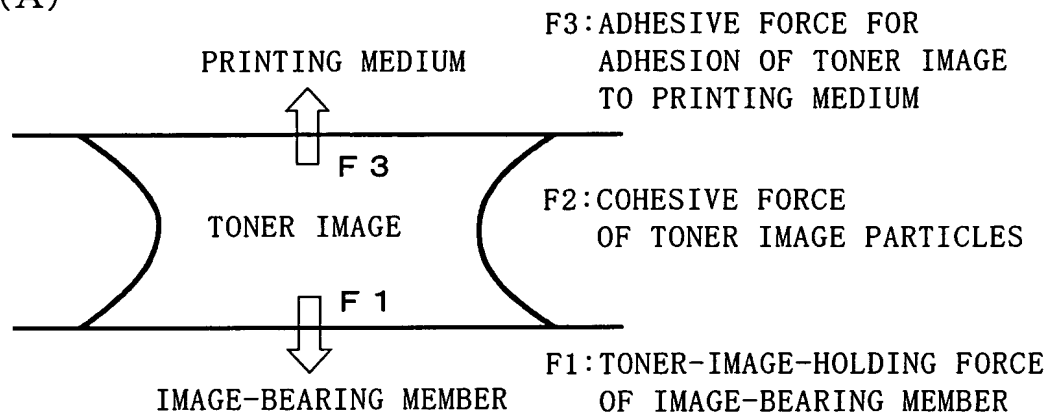


FIG. 13

(A)


PRINTING MEDIUM
F 3
TONER IMAGE
F 1
IMAGE-BEARING MEMBER
F3: ADHESIVE FORCE FOR ADHESION OF TONER IMAGE TO PRINTING MEDIUM
F2: COHESIVE FORCE OF TONER IMAGE PARTICLES
F1: TONER-IMAGE-HOLDING FORCE OF IMAGE-BEARING MEMBER

(B)

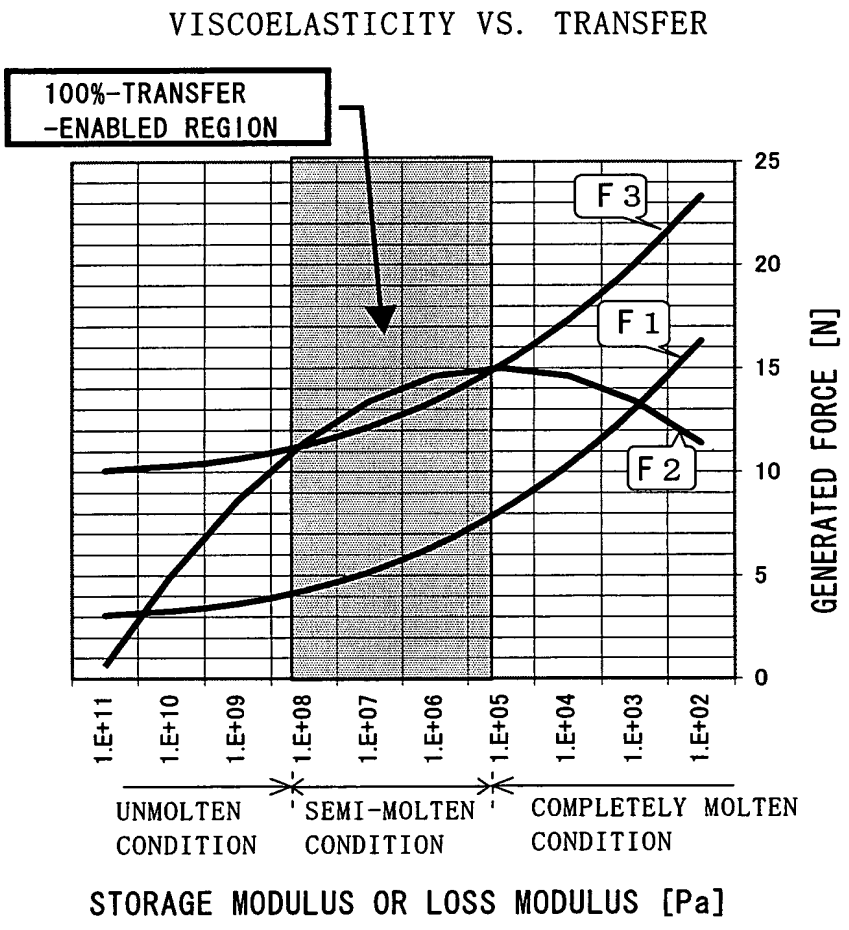

VISCOELASTICITY VS. TRANSFER
100%-TRANSFER -ENABLED REGION
F 3
F 1
F 2
25
20
15
10
5
0
GENERATED FORCE [N]
1.E+11
1.E+10
1.E+09
1.E+08
1.E+07
1.E+06
1.E+05
1.E+04
1.E+03
1.E+02
UNMOLTEN CONDITION
SEMI-MOLTEN CONDITION
COMPLETELY MOLTEN CONDITION
STORAGE MODULUS OR LOSS MODULUS [Pa]

FIG. 14

VISCOELASTICITY VS. GENERATED FORCES ACTING ON TONER PARTICLES

STORAGE MODULUS OR LOSS MODULUS [Pa]	F1: TONER-HOLDING -FORCE OF IMAGE-BEARING MEMBER [N]	F2: COHESIVE FORCE OF TONER [N]	F3: ADHESIVE FORCE FOR ADHESION TO MEDIUM (PAPER) [N]
1.E+02	16.31	11.4	23.31
1.E+03	13.00	13.4	20.00
1.E+04	10.29	14.6	17.29
1.E+05	8.12	15.0	15.12
1.E+06	6.43	14.6	13.43
1.E+07	5.16	13.4	12.16
1.E+08	4.25	11.4	11.25
1.E+09	3.64	8.6	10.64
1.E+10	3.27	5.0	10.27
1.E+11	3.08	0.6	10.08